

Scanning the Past

Clarence W. Hansell and Philip S. Carter

Sixty years ago this month, the PROCEEDINGS OF THE INSTITUTE OF RADIO ENGINEERS (IRE) included a joint paper by Clarence W. Hansell and Philip S. Carter on the control of frequency of radio transmitters. At the time, both men worked as research and development engineers for the Radio Corporation of America (RCA) at its transmitter laboratory at Rocky Point on Long Island, NY. Both engineers made numerous contributions to communications engineering during their long careers at RCA and both became Fellows of the IRE.

Hansell was born in Indiana in 1898. He received a degree in electrical engineering from Purdue University in 1919. His first job was with the General Electric Company (GE) where he was assigned to help test and install long-wave radio transmitters using the Alexanderson 200 kW radio alternators. Subsequently, he collaborated with Walter R. G. Baker and William C. White on the development of a long-wave vacuum tube transmitter suitable for use in transoceanic radio telegraphy. Hansell joined the engineering staff of RCA in the early 1920's and helped develop shortwave radio equipment for commercial transoceanic service. He became director of the transmitter laboratory at Rocky Point in 1925 and continued to take an active role in research in radio communication and also experimental television, beginning in the 1930's. He contributed to radar development during World War II and served on a team of engineers sent to assess German innovations including magnetic tape recorders shortly after the war ended.

An article published in 1947 ranked Hansell among the all-time leaders in patented inventions with more than 240 US patents. He eventually received about 400 patents.

Hansell retired from RCA in 1963 and died in 1967 at age 69.

Carter was born in Connecticut in 1896. He graduated with a degree in mechanical engineering from Stanford University in 1918. He served a few months in the Army Signal Corps before joining GE as an engineer in 1919. He soon transferred to RCA where he worked with Harold H. Beverage on development of long-wave receiving antennas. Later Carter spent time at various RCA transmitter stations in New Jersey and Massachusetts before being assigned to the transmitter laboratory at Rocky Point in 1926. He received his first patent in 1927 for inventing an improved method of coupling a transmitter to an antenna located some distance away. Other inventions followed including the folded dipole, the bow-tie antenna, and the biconical antenna. In January 1939 Carter published an article on a universal transmission line chart in the RCA Review. The Carter chart enjoyed considerable use during World War II and later as an alternative to the Smith chart.

During the War, Carter helped establish a ground observer network to report sightings of German submarines along the East Coast. He also contributed to the design of antennas for use in electronics countermeasures and spent time in Europe in 1944 installing communications systems. He was active professionally in the IRE serving on the Board of Editors and several committees. He was Chairman of the professional group on Antennas and Propagation in 1953-1954. He died a few months before his planned retirement from RCA in 1961 at age 64.

James E. Brittain